Lesson 3.2: Residential Space Planning

Competency:
Draw Floor Plans

Objective:
Analyze accepted principles of single-view residential space planning

A. Assessing the client's needs

1. A successful design adequately accommodates within a structure the lifestyle and specific needs of the user.
2. Determine specific requirements of the client
    a. Prepare a list that includes design considerations and necessities
        1) Family size and structure
        2) Family or individual's interests and activities
        3) Budget of project
        4) Location of site
        5) Number of levels
        6) Architecture style
        7) Zoning ordinances and covenants

B. Levels

1. One story homes are typically compatible with a limited number of architectural styles and have the potential to be more costly if located on a larger site.
2. One and one-half story homes utilize the attic as a living space through structural elements including a steep roof and dormers projecting from the roof to let in air and light.
3. Two story homes are economical to build because of smaller roof and foundation area.
4. Split-level homes are developed for a sloping lot, and separate sleeping, living, and recreation on different levels.

C. Traffic patterns

1. Are a primary consideration in designing a functional plan.

2. Main traffic areas include the halls, stairs, foyers, entrances to rooms, and exterior entrances.
3. Travel should be short and if possible not pass through other rooms.
4. Trace various routes through the house to analyze traffic flow.

D. Halls

a. Minimum width of 3’0, 3’-4” is preferable
b. Plan for the movement of furniture
c. Long hallways waste useful space

5. Doors should be planned and located to guide traffic through rooms.
6. Doors and openings located near a corner of a room usually result in less wasted space. Leave a minimum of 3.5” for casing inside corner to frame.
7. Entrances
    a. Usually include an outside and inside waiting area.
    b. Flooring materials should not be affected by water or dirt.
    c. Minimum of 2 entrances
    d. Main house entrance
        1) Should be easily identified
        2) Should include a foyer if space permits
            i. size depends on size of house
            ii. often omitted in small houses
        3) Should be able to view visitors without opening a door
        4) Minimum entrance is 3’-0”.

D. Room planning

1. Living area
    a. Generally, comprises 1/3 of the house and includes the living room, dining room, foyer, recreation or family room, great rooms, sunroom, home office, den or other gathering spaces
    b. Types of floor plans
        1) Closed/Formal plans place rooms in cubicles accessible through doors and openings.
            - Found frequently in traditional style homes

2) Open/Informal plans include partial separations or may combine several spaces (rooms) into one open area.

i. Area rugs or furniture provide a visual separation

ii. Floor elevations and ceiling heights may differentiate

c. Living room

1) Size and layout is determined by its purpose

i. TV room

ii. Center of activities

iii. Entertaining guests

iv. Furniture

v. Living habits of occupants

2) Limit traffic patterns through living areas

3) Centrally located near an entrance

4) Consider views to outside

5) Dining and entertaining are closely related and should be located in close proximity to each other.

d. Dining room

1) Size and layout is determined by its purpose

i. Closed/Formal or Open/formal plan

ii. Presence of smaller eating areas

iii. Number of guests to be served

iv. Furniture

2) May be accessible to porch or deck for outside dining

3) Ideally located between the family room and kitchen

3) Allow ample space for serving and movement

2. Sleeping area

a. Includes bedrooms, baths, dressing rooms, and closets.

b. Homes are categorized by the number of bedrooms and baths.

c. Three bedroom homes are most common.

d. Rooms are often grouped together in a quiet, separate wing or level.

e. Master bedroom may be separated from other bedrooms.

f. Bedroom size and layout is related to furniture and function.

1) Minimum size is 70 square feet or 7’ in any direction.

2) Consider furniture items and size to be used

3) Plan for movement of furniture

4) Consider planned activities

i. Writing

ii. Reading

iii. Watching TV

iv. Hobbies

g. Typically, bedrooms should be accessible to a hall.

1) Doors should swing into the bedroom.

2) Minimum width of door to bedroom is 2’-8”

3) Door size should allow for furniture movement.

h. Windows

1) Used for ventilation and light

2) Must be included as a second means of egress.

3) Windows use wall space that could be used for furniture arrangement.

i. Dressing areas

1) May be an alcove or a separate room

2) May include sinks, make-up counters, mirrors, chairs, closets and other dressing items

3) Often adjacent to the master bath

j. Bathrooms

1) Includes plumbing fixtures such as the toilet, shower, tub, sink, and bidet

i. Lavatories may be wall-hung, pedestal, or countertop.

ii. Various sizes and styles of fixtures are available.

iii. Allow 15” minimum from center line of water closet to wall or adjacent fixture

2) Plumbing wall for toilet should be constructed of a minimum of 2” x 6” studs (**Partition 5.5**”)

3) May be compartmentalized

4) Bedrooms should be placed close to a bath or have an adjacent bath.

5) The master bedroom usually has an adjacent bath.

6) Bath sizes vary according to space available.

i. Minimum size for full bath is 5’0” x 8’0”

ii. A half-bath contains a lavatory and a toilet

iii. Minimum size for half-bath is 3’0” x 7’0”

7) Bath furnishings may include built in clothes hampers, shelves for linens, counter space, medicine cabinets, and mirrors.

8) Must have natural ventilation and or fan to remove moisture

9) Grouping baths increases efficiency by allowing for centralized plumbing.

10) Modifications are required for special medical/disabled clients. One accessible bathroom on the first floor is required. This bathroom must have a 32” swing door or 30” pocket door to be designated accessible.

11) Linen closets should be minimum of 18” deep.

3. Service area

a. Kitchen

1) Purpose is food preparation but may include dining, laundry, and storage

2) Kitchen is made up of three work centers:

i. Food storage and preparation (refrigerator, cabinets, pantry, countertops)

ii. Cooking (range, oven, microwave, countertops)

iii. Clean-up (sink, dishwasher, countertops)

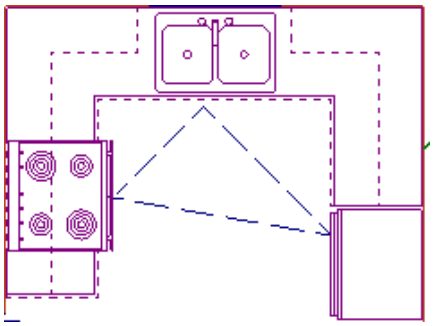
3) Work triangle measures efficiency

i. A line from the center front of each work center makes up the work triangle.

ii. The sum of all sides of the work triangle should not exceed 22’.

iii. When possible, traffic lanes should not impede the work triangle.

An example of a work triangle:



4) Countertops and cabinets must be sufficient to allow for kitchen operation and storage.

i. Draw base cabinets 24” deep and wall cabinets 12” deep.

ii. Draw wall cabinets as dashed lines (cabinet function, auto cabinet)

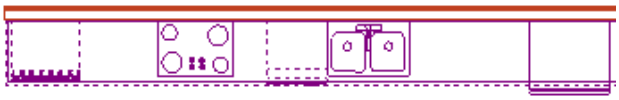
5) Kitchen styles

i. Straight line

- Used in smaller spaces such as cottages or apartments

-Provides a limited amount of cabinets

An example of a straight line configuration:

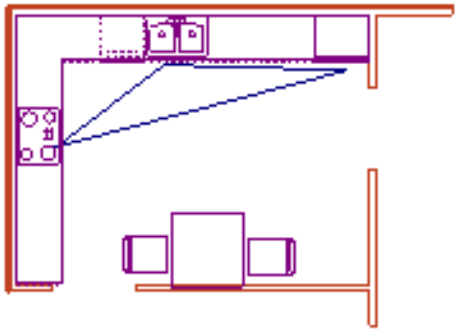


ii. L-shape

-Not used for large kitchens where walls may become too long

-Creates an efficient workspace and is more attractive than straight line

An example of an L-shape configuration:



iii. Corridor/Galley

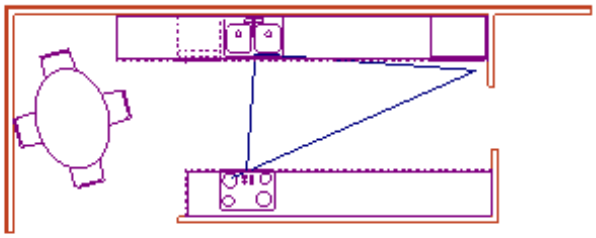
-Small to medium sized kitchens

-Efficient arrangement for long, narrow spaces

-Not recommended if traffic is heavy through the kitchen

-Need at least 4’ between cabinets for movement

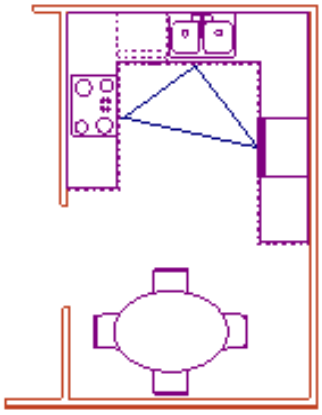
An example of a corridor configuration:



iv. U-shape

- High efficiency
- Medium sized kitchens
- Approximately 6’ between legs of “U”

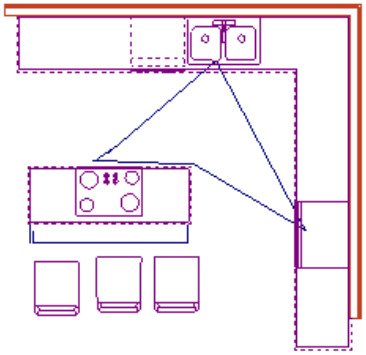
An example of a U shape configuration:



v. Island

- Island can be used to house the sink, cooking center, or food preparation area or serve as a snack bar.
- Allow 42” on all sides

An example of an island configuration:



6) Kitchen eating areas (Family kitchen)

i. Open/Informal plan

ii. May include table/chairs or an eating counter

b. Laundry

1) Size and location varies with function

i. Washing drying, ironing, mending clothes

ii. May be placed close to kitchen and other work areas of nearby bedrooms

2) Efficient design has arrangement of appliances/fixtures following order of operations.

i. Receiving and preparing requires hamper/bins.

ii. Washing requires sink, washer, and detergents.

iii. Drying requires dryer and/or drying line.

iv. Folding and ironing requires board, countertop, and racks

c. Garage or Carport

1) Size depends on the number of cars to be housed and other purposes it will be used for

i. Single car space is recommended to be from 11'x19' to 16'x25' depending on the car and access space

ii. Double car space is recommended to be from 20'x20' to 25'x25'

iii. Space may be increased if garage is to be used for storage or a workshop

2) Maybe attached to the house or a separate structure

i. Style should match the house

ii. Maybe connected by a breezeway

3) A carport is like a garage except one or more walls are removed and no doors are provided.

i. Less expensive to build than a garage

ii. Does not provide as much protection as a garage

iii. Better suited to mild climates

4) Garage doors vary in style, construction, and size.

5) Garage floors are most often constructed with concrete.

i. Slope toward doors or built in drain

ii. 4" thick with vapor barrier and reinforcement

iii. Apron connects floor to paved driveways

6) Driveways

i. May include a turnaround to avoid having to back into the street

ii. Desirable widths are 10' for a single car of 18' for a double car garage

iii. Turning radii of 15’ should be provided where the driveway connects to the street.

iv. Driveway layout may vary due to size and position of house as related to the lot.

4. Outside living areas (porches, patios, decks)
    a. Patios are located at ground level and are generally constructed of concrete.
    b. Porches and decks are structurally connected to the house and are raised above grade
        1) Porches are built of various materials.
        2) Decks are constructed of pressure treated lumber as well as composite and recycled materials.